

REVIEW GUIDANCE FOR THE REVISED SAFETY REQUIREMENTS DOCUMENT SUBMITTAL OF APRIL 2003



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WTP Safety Regulation Division

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Office of River Protection
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Date

PREFACE

As directed by Congress in Section 3139 of the *Strom Thurmond National Defense Authorization Act for Fiscal Year 1999*, the U.S. Department of Energy (DOE) established the Office of River Protection (ORP) at the Hanford Site to manage the River Protection Project (RPP), formerly known as the Tank Waste Remediation System. ORP is responsible for the safe storage, retrieval, treatment, and disposal of the high level nuclear waste stored in the 177 underground tanks at Hanford.

The initial concept for treatment and disposal of the high level wastes at Hanford was to use private industry to design, construct, and operate a Waste Treatment Plant (WTP) to process the waste. The concept was for DOE to enter into a fixed-price contract for the Contractor to build and operate a facility to treat the waste according to DOE specifications. In 1996, DOE selected two contractors to begin design of a WTP to accomplish this mission. In 1998, one of the contractors was eliminated, and design of the WTP was continued. However, in May 2000, DOE chose to terminate the privatization contract and seek new bidders under a different contract strategy. In December 2000, a team led by Bechtel National, Inc. was selected to continue design of the WTP and to subsequently build and commission the WTP.

On January 10, 2001, the U.S. Department of Energy published the revised Nuclear Safety Management rule, 10 CFR 830. This rule, in Subpart B, "Safety Basis Requirements," established specific requirements for the establishment and maintenance of the safety basis of DOE nuclear facilities, including the River Protection Project Waste Treatment Plant (WTP) project.

A key element of the River Protection Project Waste Treatment Plant (WTP) is DOE regulation of safety through a specifically chartered, dedicated Office of Safety Regulation (OSR). The OSR reports directly to the ORP Manager. The regulation by the OSR is authorized by the document entitled *Policy for Radiological, Nuclear, and Process Safety Regulation of the River Protection Project Waste Treatment Plant Contractor* (DOE/RL-96-25) (referred to as the Policy) and implemented through the document entitled *Memorandum of Agreement for the Execution of Radiological, Nuclear, Process Safety Regulation of the WTP Contractor* (DOE/RL-96-26) (referred to as the MOA). These two documents provide the basis for the safety regulation of the WTP at Hanford, including the implementation of regulatory requirements such as 10 CFR 830.

The foundation of both the Policy and the MOA is that the mission of removal and immobilization of the existing large quantities of tank waste by the WTP Contractor must be accomplished safely, effectively, and efficiently.

The Policy maintains the essential elements of the regulatory program established by DOE in 1996 for the privatization contracts. The MOA clarifies the DOE organizational relationships and responsibilities for safety regulation of the WTP. The MOA provides a basis for key DOE officials to commit to teamwork in implementing the policy and achieve adequate safety of WTP activities.

The Policy, the MOA, the WTP Contract, and the four documents incorporated in the Contract define the essential elements of the regulatory program being executed by the OSR. The four

documents incorporated into the Contract (and also in the MOA) are as follows:

Concept of the DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor, DOE-96-0005,

DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor, DOE/RL-96-0003,

Top-Level Radiological, Nuclear, and Process Safety Standards and Principles for the RPP Waste Treatment Plant Contractor, DOE/RL-96-0006, and

Process for Establishing a Set of Radiological, Nuclear, and Process Safety Standards and Requirements for the RPP Waste Treatment Plant Contractor, DOE/RL-96-0004.

DOE patterned its safety regulation of the WTP Contractor to be consistent with the concepts and principles of good regulation (reliability, clarity, openness, efficiency, and independence) used by the Nuclear Regulatory Commission (NRC). In addition, the DOE principles of integrated safety management were built into the regulatory program for design, construction, operation, and deactivation of the facility. The regulatory program for nuclear safety permits waste treatment services to occur on a timely, predictable, and stable basis, with attention to safety consistent with that which would occur from safety regulation by an external agency. DOE established OSR as a dedicated regulatory organization to be a single point of DOE contact for nuclear safety oversight and approvals for the WTP Contractor. The OSR performs nuclear safety review, approval, inspection, and verification activities for ORP using the NRC principles of good regulation while defining how the Contractor shall implement the principles of standards-based integrated safety management.

A key feature of this regulatory process is its definition of how the standards-based integrated safety management principles are implemented to develop a necessary and sufficient set of standards and requirements for the design, construction, operation, and deactivation of the WTP facility. This process meets the expectations of the DOE necessary and sufficient closure process (subsequently renamed Work Smart Standards process) in DOE Policy 450.3, *Authorizing Use of the Necessary and Sufficient Process for Standards-based Environment, Safety and Health Management*, and is intended to be a DOE approved process under DOE Acquisition Regulations, DEAR 970.5204-2, *Laws, Regulations and DOE Directives*, Section (c). DOE approval of the contractor-derived standards is assigned to the OSR.

The WTP Contractor has direct responsibility for WTP safety. DOE requires the Contractor to integrate safety into work planning and execution. This integrated safety management process emphasizes that the Contractor's direct responsibility for ensuring that safety is an integral part of mission accomplishment. DOE, through its safety regulation and management program, verifies that the Contractor achieves adequate safety by complying with approved safety requirements.

RECORD OF REVISION	
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REVIEW GUIDANCE FOR THE REVISED SAFETY REQUIREMENTS DOCUMENT (SRD) SUBMITTAL OF APRIL 2003

1.0 INTRODUCTION

This Guide is for use by the WTP Safety Regulation Division (OSR) in reviewing the River Protection Project (RPP) Waste Treatment and Immobilization Plant (WTP) Contractor's revised SRD. The purpose of the review is to determine whether the Contractor's proposed changes to the SRD are acceptable.

2.0 SCOPE

The Contractor is required by the Contract¹ to submit documentation of the changes made to the SRD and the justification for changes that meet the criteria for an authorization basis change as identified in RL/REG-97-13, *Office of Safety Regulation Position on Contractor-Initiated Changes to the Authorization Basis*.² The reviewers will assess the changes for compliance with RL/REG-97-13 and determine whether the SRD contains the Contractor's recommended set of radiological, nuclear, and process safety standards for design, construction, operation and deactivation in accordance with DOE/RL-96-0003, *DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor*.³

3.0 DETAILED CHANGE REVIEW

3.1 General Review Guidance

The reviewers will assess the proposed SRD changes for consistency with the Contract and regulatory documents, other authorization basis documents, and applicable laws and regulations. The Contractor normally will justify the changes on one of three bases:

1. For proposed changes to an existing standard⁴ that are not purely administrative changes, and that do not involve reductions in commitment or effectiveness, justification, i.e., the safety evaluation, may be based on a comparison of the proposed change to an existing standard in the SRD leading to a conclusion that the change does not result in a reduction of commitment or effectiveness of any procedure, program, or plan described in the authorization basis. The Contractor may present new evaluations or reference existing evaluations that apply to the amendment. Guidance for the review of proposed changes of this type is contained in Section 3.2.1.

¹ Contract No. DE-AC27-91RV14136 between the U.S. Department of Energy and Bechtel National, Inc., dated December 11, 2000.

² Supporting documentation for changes that do not require OSR approval per RL/REG-97-13 need not be submitted with the Construction Authorization Request Package but are retained for OSR review onsite.

³ DOE/RL-96-0003, *DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor*, Section 3.3.3, "Authorization for Construction," and Section 3.3.1, "Standards Approval," Rev. 2, 2001.

⁴ The term "standard" in this guide means any safety criterion or implementing code and standard in the SRD.

2. For proposed changes to an existing standard that are not purely administrative changes, and that do involve reductions in commitment or effectiveness, justification may be developed from "first principles" (i.e., using the same rationale that was used to develop the original SRD). Typically, this would be derived from the DOE/RL-96-0003 process and would conclude that the proposed change to the existing SRD is safe in that it is supported by the hazard assessment for the facility; does not adversely impact the environment; conforms to applicable laws, regulations, the Contract, and Top-Level Standards; and does not conflict with other parts of the authorization basis. This approach would be required for changes to standards involving the reduction in commitment or effectiveness of any procedure, program, or plan described in the authorization basis. Guidance for the review of proposed changes of this type is contained in Section 3.2.2.
3. Changes to the standards that are purely administrative in nature should be approved. It is expected that some of the changes will fall into this category. Guidance for the review of proposed changes of this type is contained in Section 3.2.3.

The reviewers will communicate, as necessary, with the sponsor of the SRD Change Request in the Contractor's organization. Communication will be via the OSR team leader to resolve concerns and receive any supplemental information necessary to complete the safety evaluation. All information used to develop conclusions must be appropriately referenced in the Safety Evaluation Report (SER) for the change. Management Directives (MD) 1.4, "Conduct of Meetings with External Parties," and MD 2.1, "Information Management," address the process for exchanging information with the Contractor.

The reviewers may use the following documents and submittals (as applicable) to research the subject areas being revised:

- Preliminary Safety Analysis Report (PSAR)
- Integrated Safety Management Plan (ISMP)
- Safety Requirements Document (SRD)
- Other approved Authorization Basis Change Notices (ABCN).

The reviewers should also determine whether the amendment will necessitate changes to internal OSR documents and disposition any public comments.

The Contractor's general rationale for this proposal is intended to:

- Continue to address contract, laws, regulations, and top level requirements
- Have fewer Safety Criteria
- Achieve reduced number and less complex Authorization Basis (AB) change submittals for U.S. Department of Energy (DOE) review and approval
- Reduce administrative costs to maintain AB documents

- Make safety requirements more visible for the design, construction, and commissioning phases
- Ensure consistent SRD level of detail comparable to DOE O 420.1A
- Remove redundancies and clarify requirements
- Remove Safety Criteria if no regulatory reason for them exists.

Except for the first item in this list, this rationale should not be viewed as acceptance criteria for the reviewers. The proposed changes are to be accepted only if the changes continue to address the Contract, laws, regulations, Top-Level Standards, and the facility hazards.

The level of detail in SRD safety criteria is expected to be greater than that contained in the Contract, Top-Level Standards, laws and regulations. The level of detail in the SRD safety criteria should also reflect the hazards in the facility. The implementation of the details for SRD safety criteria should be contained in SRD implementing codes and standards. In order to determine the acceptability of a particular proposed change to an SRD safety criterion or SRD implementing code and standard, the reviewer must consider the basis for the requirement (Contract, Top-Level Standard, law or regulation), and the facility hazards.

3.2 Review Procedures

The reviewers will determine whether the information outlined in this section has been provided and is sufficiently detailed to ensure adequate understanding of the justification for the changes to the SRD. Based on the information provided, reviewers will evaluate the acceptability of the changes. The proposed changes to the SRD are acceptable if the acceptance criteria are met. The acceptance criteria are outlined in the applicable category described in Sections 3.2.1, 3.2.2, or 3.2.3.

The difference between the acceptance criteria contained in Sections 3.2.1 and 3.2.2 is that Section 3.2.2 provides the mechanism for the Contractor to make SRD revisions that reduce previous commitments or the effectiveness of programs, procedures, or plans described in the authorization basis. Section 3.2.1 does not allow for this reduction.

An example of the approach described in Section 3.2.2 for reducing a commitment to a standard would be where an existing standard has no hazard basis or that its hazard basis does not support the commitment. Another example would be where the hazard analysis has been refined, resulting in a standard no longer being necessary.

Section 3.2.3 is for administrative changes that have no potential to affect safety. It is expected that the revised SRD will contain some changes of this type. These changes do not involve a reduction in previous commitments or in the effectiveness of programs, procedures, or plans described in the authorization basis. These changes do not involve the deletion or modification of more than an administrative nature of a standard previously identified or established in the approved SRD.

3.2.1 Review of Changes that do not involve a reduction in commitment or effectiveness

For proposed changes to an existing standard⁵ that are more than administrative changes, and that do not involve reductions in commitment or effectiveness, justification, i.e., the safety evaluation, may be based on a comparison of the proposed change to an existing standard in the SRD leading to a conclusion that the change does not result in a reduction of commitment or effectiveness of any procedure, program, or plan described in the authorization basis. The Contractor may present new evaluations or reference existing evaluations that apply to the amendment. The reviewer must conclude the following:

- The proposed change will provide adequate safety. The Contractor must provide a safety evaluation of the proposed revision that supports the conclusion that the proposed revision does not result in a reduction in commitment or a reduction in the effectiveness of any program, procedure, or plan described in the authorization basis. (RL/REG-97-13, Section 3.5.a.1.vi).

Reviewer guidance: Review the Contractor's safety evaluation and ensure that a case is made that the change continues to provide adequate safety for the facility hazards and that there is no reduction in commitment or effectiveness associated with the SRD change.

- The Contractor's evaluation should be documented in sufficient detail such that a knowledgeable individual reviewing the safety evaluation can identify the technical issues considered during the safety evaluation and basis for the determination. (RL/REG-97-13, Section 3.5.a.2.iii).

Reviewer guidance: Ensure that all conclusions in the ABCN that have a technical basis are adequately supported in the evaluation. The link between the technical basis and the conclusion in each case should be clear.

- The proposed change will continue to conform to the contract requirements associated with the authorization basis documents affected by the revision. (RL/REG-97-13, Section 3.5.a.1.vii).

Reviewer guidance: Review the Contract to determine if there are any requirements associated with the AB documents affected by the revision. Ensure that the changed AB documents continue to conform to the Contract.

- The proposed change will not result in inconsistencies with other commitments and descriptions contained in the authorization basis (e.g., changes to Safety Criteria may effect the Radiation Protection Program, Quality Assurance Manual, etc.) (RL/REG-97-13, Section 3.5.b.(3)).

Reviewer guidance: Review the SRD for internal consistency focusing on the revised sections. Also, compare the ISMP to the SRD for consistency. Reviews of the historical

⁵ The term "standard" in this guide means any safety criterion or implementing code and standard in the SRD.

revisions may be useful in ensuring that no inconsistencies with other commitments of the authorization basis exist.

3.2.2 Review of Changes that may involve a reduction in commitment or effectiveness

Contractor revisions to the SRD that involve the deletion or modification of a standard previously identified or established in the approved SRD and may involve a reduction in commitment or effectiveness of the SRD, may be approved under the criteria for an authorization basis change as identified in RL/REG-97-13. The reviewers will determine if the Contractor met the requirements of RL/REG-97-13 as described below. The reviewer must conclude the following requirements are met in the Contractor's proposal:

- The proposed change will provide adequate safety (RL/REG-97-13, Section 3.5.a.7.vi).

Reviewer guidance: Review the Contractor's safety evaluation and ensure that a case is made that the change continues to provide adequate safety for the facility hazards. Ensure that all conclusions have a supporting basis and are adequately described in the evaluation.

- The Contractor's evaluation should be documented in sufficient detail such that a knowledgeable individual reviewing the safety evaluation can identify the technical issues considered during the safety evaluation and basis for the determination. (RL/REG-97-13, Section 3.5.a.2.iii).

Reviewer guidance: Ensure that all conclusions in the ABCN that have a technical basis are adequately supported in the evaluation. The link between the technical basis and the conclusion in each case should be clear.

- The proposed change will continue to conform to the contract requirements associated with the authorization basis documents affected by the revision. (RL/REG-97-13, Section 3.5.a.1.vii).

Reviewer guidance: Review the Contract to determine if there are any requirements associated with the AB documents affected by the revision. Ensure that the changed AB documents continue to conform to the Contract.

- The proposed change will not result in inconsistencies with other commitments and descriptions contained in the authorization basis (RL/REG-97-13, Section 3.5.b.(3)).

Reviewer guidance: Review the SRD for internal consistency focusing on the revised sections. Also, compare the ISMP to the SRD for consistency. Reviews of the historical revisions may be useful in ensuring that no inconsistencies with other commitments of the authorization basis exist.

- The Contractor must show that the proposed change will continue to comply with all applicable laws and regulations, and conform to top-level standards in DOE/RL-96-0006,

Top-Level Radiological, Nuclear, and Process Safety Standards and Principles for RPP Waste Treatment Plant Contractor. (RL/REG-97-13, Section 3.5.a.1.vi).

Reviewer guidance: Determine if the change continues to comply with applicable laws, conforms to top-level standards, and provides adequate safety. The level of detail in SRD safety criteria is expected to be greater than that contained in the Contract, Top-Level Standards, laws and regulations. The level of detail in the SRD safety criteria should also reflect the hazards in the facility. If there is an important hazard in the facility that is not specifically called out in the Top-Level Standards, laws, or regulations, Safety Criterion should be developed for the hazard. The implementation of the details contained in SRD safety criteria should be contained in SRD implementing codes and standards. In order to determine the acceptability of a particular proposed change to an SRD safety criterion or SRD implementing code and standard, the reviewer must also consider the basis for the requirement (Contract, Top-Level Standard, law or regulation) along with the facility hazards.

- If the revision involves the deletion or modification of a standard previously identified in the approved SRD, the Contractor must certify that the revised SRD will identify a set of standards that will continue to provide adequate safety, comply with all applicable laws and regulations, and conform to the top-level standards. If a proposed SRD change potentially results in less protection of workers, the public or the environment against the hazards associated with the operation of the facility, the development and selection of this change should follow the process outlined in DOE/RL-96-0004, *Process for Establishing a Set of Radiological, Nuclear, and Process Safety Standards and Requirements for the RPP Waste Treatment Plant Contractor* (RL/REG-97-13, Section 3.6.f).

Reviewer guidance: Determine if the revised standard set documented in the SRD was generated through the appropriate implementation of the standards process stipulated in DOE/RL-96-0004. The hazards associated with the change should be assessed appropriately so that they can provide a basis for the standard selection process identified in DOE/RL-96-0004. In addition, the Contractor should demonstrate in its written evaluation that the revised safety standards stem from the hazard assessment, and that control strategies have been selected appropriately along with the revised standards.

- A description of the proposed revision (Section 3.6.a), including a copy of the authorization basis document or appropriate excerpt showing the proposed revision (RL/REG-97-13, Section 3.6.d)

Reviewer guidance: The proposed revision to the SRD must be precisely defined, including how implementing codes and standards are affected.

3.2.3 Administrative Changes to the Safety Requirements Document

The Contractor may make revisions to the authorization basis, other than to the Quality Assurance (QA) Program or Radiation Protection Program, provided deletion or modification is purely an administrative change to a standard previously identified or established in the approved SRD. While these types of changes are typically made without OSR approval, it is likely that the

revised SRD contains some of them. They are acceptable provided the following conditions are met:

- An evaluation is performed which demonstrates that the revision is purely an administrative deletion or modification change to a standard previously identified or established in the approved SRD (RL/REG-97-13, Section 3.5.a.(1)).

Reviewer guidance: This section may be used only if the change is purely administrative. The reviewers should verify this. If the change request states that the change is administrative and it appears to be otherwise, a comment identifying the apparent non-administrative change and requesting an evaluation should be developed for transmittal to the Contractor.

3.3 Evaluation Findings

If changes to the SRD are acceptable after the review is completed, the reviewers will prepare input for the SER. Exhibit 2 provides examples of safety evaluation input. Any exceptions should be noted and stated in a way to provide a clear understanding of the necessary revisions to the team leader. The reviewer may recommend to the team leader that the submittal be conditionally approved with provisions for the Contractor to submit additional information within a specified timeframe.

4.0 MAJOR MILESTONES FOR REVIEWING THE SAFETY REQUIREMENTS DOCUMENT PACKAGE

The length of this review will depend on the adequacy of the Contractor's submittal. If no questions are necessary, the duration is planned for 6 weeks. If one round of questions are necessary, the duration is planned for 11 weeks. Four of the 11 weeks are for the Contractor to respond to questions. Table 1 shows the detailed schedule for this review.

Table 1. Major Milestones Associated with Review of the SRD

Estimated dates	Activity
April 7, 2003	The Contractor submits the SRD update.
April 14, 2003	Two week review begins. During this period the reviewers should write the SER. In most cases enough information has been provided by the contractor to support writing the SER. In those cases where enough information has not been provided by the Contractor, the reviewers should develop a review question. Review questions should be developed using the form in Section 6 below.
April 28, 2003	Two week review ends: <ul style="list-style-type: none"> • Reviewers to provide team leader draft SER for all changes for which review questions were not necessary. • Reviewers to submit questions.
May 5, 2003	Review questions should be sent to the Contractor by this date, if necessary.
June 2, 2003	The Contractor responds to first round questions by this date.

Estimated dates	Activity
June 16, 2003	Reviewers complete draft safety evaluations of changes where review questions were developed and satisfactorily answered and provide draft safety evaluations to team leader. All safety evaluations should be to the team leader by this date.
June 23, 2003	SER put into concurrence chain for all changes.
June 30, 2003	Issue SER.

5.0 REVIEW TEAM MEMBERS AND RESPONSIBILITIES

Table 2, below, shows the proposed safety criteria to be changed and the lead reviewer for each change.

Table 2. Review Team Responsibilities

SC	Subject	Lead reviewer
1.0-1	Comprehensive rad safety program	Yuhas
1.0-10	Compliance with specific regs	Pasciak
1.0-2	Accident prevention	Yuhas
1.0-3; -4; -5	Risk	Yuhas
1.0-4	Risk	Yuhas
1.0-5	Risk	Yuhas
1.0-6	Accident conditions	Yuhas
1.0-7	Defense in depth	Yuhas
1.0-9	Safety responsibility	Lerch
2.0-1	Rad Dose Standards	Yuhas
2.0-3	Rad dose standards	Yuhas
3.1-1	PHA	Maruvada
3.1-2; -3; -4; -5; -6; -7	Process hazards analysis	Maruvada
3.1-8	Progress hazards analysis	Maruvada
3.2-1	Risk analysis	Yuhas
3.2-2; -3	Hazard control strategy and standards Identification	Yuhas
3.3-2	Criticality	Vonderfecht
4.0-1	Configuration Management	Cooper
4.0-2	Procedures to manage changes	Cooper
4.0-3	As built records	Lerch
4.1-1	Risks associated with inventories	Yuhas
4.1-6	Facility security	Lerch
4.2-1	Retention of rad material	Yuhas
4.2-3	Erosion/corrosion	Gilbert
4.2-4	Continuous monitoring of tanks	Panchison
4.3-1	Automatic control and instrumentation	Panchison
4.3-2	Single failure protection	Lerch & Pasciak
4.3-3	Testability of ITS systems	Panchison & Maruvada
4.3-5	Single failure protection	Lerch & Pasciak
4.4-1	Performance specs for ITS systems	Panchison & Maruvada
4.4-10; -11; -12	Electric power	Maruvada

4.4-13; -14; -15; -16; -17	Instrument air	Panchison
4.4-18; -19; -20	Cooling water	Panchison
4.4-2	Environmental qualification	Gilbert & Panchison
4.4-21	MOVs	Panchison
4.4-5	Redundancy for air treatments	Panchison & Yuhas
4.4-6; -7	Operability of air treatment systems	Panchison
4.4-8, new 4.4-3	Provisions for off-gas & ventilation systems	Panchison
4.4-9	Electric power	Maruvada
4.5-1 through 4.5-25	Fire protection	Griffith
5.3-1	Environmental Radiation Protection Program	Potter
5.3-2	ALARA effluent	Potter
5.3-3	Water management program	Potter
5.3-4	Effluents	Potter
5.3-5	Air emissions	Potter
5.3-6	Release to sanitary sewers	Potter
5.3-7	Liquid discharges	Potter
5.3-8	Contaminated material release	Potter
5.4-1	Effluent monitoring testing	Potter
5.4-10	Environmental surveillance	Potter
5.4-2	Fugitive emissions	Potter
5.4-3	Evaluating doses	Potter
5.4-4; -6	Evaluating doses, monitoring, records	Potter
5.4-5	Effluents	Potter
5.4-7; -8; -9	Effluent dose limits	Potter
6.0-1;	Preop testing;	Cooper
6.0-2	Functional testing	Cooper
6.0-3	Component testing	Cooper
6.0-4	Component documentation during testing	Cooper
7.0-1	Operational procedures	Cooper
7.0-2	Operational controls	Cooper
7.0-3; -4	Operating organization responsibilities	Cooper
7.1-2	Subcontractor selection	Cooper
7.1-3	Safety review organization	Cooper
7.1-4	Outside organizations	Cooper
7.2-1	Training	Hunemuller & Boudreau
7.2-2; 7.2-4;	Training	Hunemuller & Boudreau
7.2-5	Written procedures, operating procedures	Hunemuller & Boudreau
7.2-6; 7.2-7; 7.2-8;	Written procedures, operating procedures	Hunemuller & Boudreau
7.3-1	QA	Hunemuller & Boudreau
7.3-10	Compliance audits	Hunemuller & Boudreau
7.3-11	Requirements for procured items	Hunemuller & Boudreau

7.3-12	Annual submittal of QA Program to be submitted to DOE	Hunemuller & Boudreau
7.3-2; 7.3-6	QA	Hunemuller & Boudreau
7.3-3	Training	Hunemuller & Boudreau
7.3-4	QA	Hunemuller & Boudreau
7.3-5	Control of work	Hunemuller & Boudreau
7.3-7	Inspection and testing	Cooper
7.3-8	Management assessments	Hunemuller & Boudreau
7.3-9	Independent assessments	Hunemuller & Boudreau
7.4-1	General USQ	Smoter
7.4-2 thru 7.4-5	General USQ	Smoter
7.5-1; -2	Operations	Cooper
7.6-1 thru 7.6-4	Maintenance	Cooper
7.7-1 thru 7.7-9	Incident investigation	Defayette
8.0-1; -2	Deactivation	Hunemuller & Boudreau
9.0-1	Effluent sampling	Potter
9.0-2	Construction authorization request	Pasciak
9.0-4	AB documents	Pasciak
9.1-1	Safety analyses	Pasciak
9.1-2	SAR	Pasciak
9.1-3	PSAR	Pasciak
9.1-4 thru 9.1-7	SAR	Pasciak
9.2-1 thru 9.2-6	Technical Safety Requirements	Smoter
Appendix A	Standards selection	Lerch & Pasciak
Appendix B	DID	Lerch & Pasciak
Appendix C	Tailoring Emergency plan	DeFayette
Appendix D	Location of co-located workers	Potter

6.0 REVIEW FORMS AND EXAMPLES SAFETY EVALUATION REPORT INPUT

The ORP Review Team Question or Comment Form (Exhibit 1) was taken from ORP/OSR-2001-14, *Partial Construction Authorization Request (PCAR) and Construction Authorization Request (CAR) Planning Handbook*, Rev. 0. Exhibit 1 should be used by reviewers in developing questions or comments. Exhibit 2 provides the reviewers examples of SER input.

7.0 REFERENCES

DOE/RL-96-0003, *DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor*, Rev. 2, U.S. Department of Energy, Office of River Protection, 2001.

DOE/RL-96-0004, *Process for Establishing a Set of Radiological, Nuclear, and Process Safety Standards and Requirements for the RPP Waste Treatment Plant Contractor*, Rev. 2, U.S. Department of Energy, Office of River Protection, 2001

DOE/RL-96-0006, *Top-Level Radiological, Nuclear, and Process Safety Standards and Principles for RPP Waste Treatment Plant Contractor*, Rev. 2, U.S. Department of Energy, Office of River Protection, 2001.

RL/REG-97-05, *Office of Safety Regulation Management Directives*, U.S. Department of Energy, Office of River Protection, 2001.

MD 1.4, Rev. 3, "Conduct of Meetings with External Parties"

MD 2.1, Rev. 3, "Information Management"

RL/REG-97-13, *Office of Safety Regulation Position on Contractor-Initiated Changes to the Authorization Basis*, Rev. 7, U.S. Department of Energy, Richland Operations Office, 2000.

ORP/OSR-2001-14, *Partial Construction Authorization Request (PCAR) and Construction Authorization Request (CAR) Planning Handbook*, Rev. 0, U.S. Department of Energy, Office of River Protection, 2001.

8.0 LIST OF TERMS

AB	authorization basis
ABCN	Authorization Basis Change Notice
DOE	U.S. Department of Energy
HAR	Hazard Analysis Report
ISMP	Integrated Safety Management Plan
MD	Management Directive
PSAR	Preliminary Safety Analysis Report
ORP	Office of River Protection
OSR	WTP Safety Regulation Division
QA	quality assurance
SAR	Safety Analysis Report
SC	safety criteria
SER	Safety Evaluation Report
SRD	Safety Requirements Document
RPP	Radiation Protection Program
USQ	unreviewed safety question
WTP	Waste Treatment and Immobilization Plant

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Exhibit 1. OSR Review Team Question or Comment Form

WTP Safety Regulation Division	Review Team Question or Comment Form
Date:	Reviewer:
Question/Comment No.: (assigned by Review Team Leader)	
Cited Reference:	
Cited Submittal Text:	
Question/Comment:	
Explanation/Discussion:	

Exhibit 2. Examples of Safety Evaluation Input

Guidance for reviewers:

Note in the proposed changes section, it must be clear what is being approved. For lengthy changes, the reviewer may reference the proposed change the Contractor is requesting, and only summarize the change in the Safety Evaluation Report (SER). If this is being done, the review must make this clear, otherwise it will be assumed that the proposed change is the reviewers summary. If the change is not lengthy, the exact change should be described in the proposed change section.

Many of the Contractor's proposed changes are described as equivalent to the original SRD. Where this is the case, the review should follow Examples 1 through 6 below for preparing SER input. Example 7 below is for changes that are not equivalent to the existing SRD and represent a reduction in commitment or effectiveness.

Example 1:

Proposed Changes to SRD Safety Criteria (SC) 5.3-4, 5.3-5, 5.4-1, 5.4-3, 5.4-4, and 5.4-5:

The proposed change for each SC is to replace the reference to ANSI N13.1-1969 in the Implementing Codes and Standards with a reference to ANSI/HPS N13.1-1999.

Evaluation (acceptable): The proposed change to the text in SRD SCs 5.3-4, 5.3-5, 5.4-1, 5.4-3, 5.4-4, and 5.4-5 is acceptable because ANSI/HPS N13.1-1999 updates and improves upon older and less robust methods provided in ANSI N13.1-1969. The change is not a reduction in commitment or effectiveness, it conforms to contract requirements associated with the authorization basis documents affected by the revision and it will not result in any inconsistencies with other commitments and descriptions contained in the authorization basis.

Example 2:

Proposed Change to SRD SC 5.4-2: The change originally proposed was deletion of SC 5.4-2. As a result of verbal communications with the Contractor the proposed change has been modified to retain SC 5.4-2 but delete "ANSI N13.1-1969 (R 1993), *Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities*" from the Implementing Codes and Standards section of SRD SC 5.4-2, and add the following to the Implementing Codes and Standards section:

"DOE/EH-0173T, *Environmental Regulatory Guide for Radiological Monitoring and Environmental Surveillance*."

"ANSI N323-1978, *Radiation Protection Testing and Calibration*."

Evaluation (conditionally acceptable): The proposed change replaces a standard (ANSI N13.1-1969) that does not provide nonpoint and fugitive emissions monitoring methods with one consensus standard and one DOE guide that are currently implemented at the

Hanford Site for this purpose. The proposed change is consistent with state air emission requirements in WAC 246-247. *Radiation Protection-Air Emissions*. Finally, the proposed Implementing Codes and Standards adequately describe nonpoint and fugitive emissions monitoring methods. Therefore, the change to SRD SC 5.4-2 is acceptable, provided the final text includes the Implementing Codes and Standards as quoted above. The change is not a reduction in commitment or effectiveness, it conforms to contract requirements associated with the authorization basis documents affected by the revision and it will not result in any inconsistencies with other commitments and descriptions contained in the authorization basis.

Example 3:

Proposed change to SRD SC 3.3-1: Add clause requiring compliance with DOE O 420.1 Section 4.3, Nuclear Criticality. Delete reference to implementing standards ANSI/ANS 8.1 & 8.19 and replace with reference to DOE O 420.1

Evaluation (Conditionally Acceptable): The change the SC would be acceptable if the if the SC referred to DOE O 420.1A rather than DOE O 420.1. DOE O 420.1A is the latest revision of this DOE Order and is equivalent to 420.1 with respect to Criticality Safety. The proposed addition of compliance with DOE Order 420.1A is consistent with the original text of SC 3.3-1 as the order explicitly requires the contractor to prevent criticality. The change does not delete any of the original content of the safety criterion. Also, replacement of the ANSI implementing standards with DOE O 420.1 has no impact on the safety criterion since DOE O 420.1A requires compliance with ANSI 8.1 & 8.19. The change is not a reduction in commitment or effectiveness, it conforms to contract requirements associated with the authorization basis documents affected by the revision and it will not result in any inconsistencies with other commitments and descriptions contained in the authorization basis.

Example 4:

Proposed change to SRD SC 3.3-8: Delete SC 3.3-8. This safety criterion addresses requirements for criticality detector coverage.

Evaluation (Conditionally Acceptable): The proposed deletion of this SC is acceptable in the context of the proposed addition of DOE O 420.1A to SC 3.3-1. DOE O 420.1A requires compliance with ANSI 8.3. Therefore, the text of the SC is effectively replaced by the requirements in ANSI/ANS 8.3, sections 4.2.1 and 5.8, which are more robust than SC 3.3-8. The change is not a reduction in commitment or effectiveness, it conforms to contract requirements associated with the authorization basis documents affected by the revision and it will not result in any inconsistencies with other commitments and descriptions contained in the authorization basis.

Example 5:

Proposed change to SRD SC 4.5-1: Replace "DOE G-440.1, *Implementing Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program*" with "DOE O 420.1, *Facility Safety*."

Evaluation (conditionally acceptable): The change in implementing code/standard would be acceptable if the replacement code/standard were DOE O 420.1A rather than DOE O 420.1. DOE O 420.1A is the latest revision of this DOE Order and is the revision that should be reflected in the BNI Fire Protection Program to ensure that the requirements of 10 CFR Part 830, Nuclear Safety Management, are properly addressed and implemented. The change is not a reduction in commitment or effectiveness, it conforms to contract requirements associated with the authorization basis documents affected by the revision and it will not result in any inconsistencies with other commitments and descriptions contained in the authorization basis.

Example 6:

Proposed change to SRD SC 4.5-9: Add the following at the end of the safety criterion: "Such features would only be necessary if required by the FHA or Safety Analysis Report (SAR) in conjunction with other facility or site environmental protection measures." Replace "DOE G-440.1, *Implementing Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program*" with "DOE O-420.1, *Facility Safety*."

Evaluation (conditionally acceptable): The sentence added to the end of the SRD SC 4.5-9 was reviewed and found to be acceptable because it is consistent with DOE O 420.1A, Section 4.2.2.8.

The change in implementing code/standard would be acceptable if the replacement code/standard were DOE O 420.1A rather than DOE O 420.1. DOE O 420.1A is the latest revision of this DOE Order and is the revision that should be reflected in the BNI Fire Protection Program to ensure that the requirements of 10 CFR Part 830, Nuclear Safety Management, are properly addressed and implemented. The change is not a reduction in commitment or effectiveness, it conforms to contract requirements associated with the authorization basis documents affected by the revision and it will not result in any inconsistencies with other commitments and descriptions contained in the authorization basis.

Example 7:

Proposed changes to SRD Appendix C, Section 7.0: In summary, the Contractor proposed to replace Chapter 21 of ACI 349-01 with Chapter 21 of ACI 318-99 for seismic proportioning and detailing, while retaining Sections 21.2.7 and 21.6.1 of ACI 349-01 Chapter 21. The Contractor requested that the WTP Specific Tailoring of SRD Appendix C, Section 7.0, ACI 349 (Code Requirements for Nuclear Safety-Related Concrete Structures) be modified as follows (underline indicates added text to existing Appendix C, Section 7.0):

Chapter 21

Replace Chapter 21 of ACI 349-01 with Chapter 21 of ACI 318-99, while maintaining the following specific provisions of ACI 349-01 Chapter 21 as identified in:

5. Section 21.2.7 (anchorage)
6. Section 21.6.1 (height/length criteria)

Justification: Chapter 21 of ACI 349-01 is based on criteria from ACI 318-95. The American Concrete Institute completed a major revision of ACI 318 between the years 1995 and 1999 with respect to seismic proportioning and detailing. The WTP project wishes to adopt the most current methodology for seismic detailing as presented in ACI 318-99 Chapter 21 pertaining to structures in high seismic risk region, in lieu of that presented in ACI 349-01 Chapter 21.

The HLW and Pretreatment reinforced concrete structures (designated Seismic Category I) of the WTP project are large shear wall and slab structures of heavy proportions, which exhibit small lateral deflections. ACI 349-01 Chapter 21 describes that at a height-to-length (h/l) ratio of less than 2, the concrete walls act in shear with insignificant bending deformation, thus boundary elements are not required. The criteria, along with the requirements for anchorage are key elements of the ACI 349-01 design philosophy contained in Chapter 21.

The purpose of maintaining the specific sections of ACI 349-01 Chapter 21 as cited above is to ensure that the specific provisions of ACI 349-01 are maintained while incorporating the more current methodology for seismic detailing requirements of ACI 318-99.

Subsequently, after discussion, the Contractor agreed to add the following notes to the SRD Appendix C, Section 7.0 justification:

Notes

1. For the purpose of determining the need for boundary elements, the h_w/l_w criterion of ACI 349-01 shall be applied separately for the entire wall (where h_w shall be defined as the total height of the wall and l_w shall be defined as the length of the wall), and for the wall pier or segment, if there is any (where h_w shall be defined as the height of the wall pier or the segment and l_w shall be defined as length of the wall pier or the segment).
2. For the purpose of determining the need for boundary elements using the $0.2f'_c$ criterion, the compressive stress in the shear wall (or shear wall segment) shall be determined by considering the axial compression and in-plane bending behavior of the wall (or shear wall segment) acting as a "beam". The maximum compressive stress may be determined by using the formula, $P/A \pm MC/I$ (where C is lever arm or the distance from neutral axis to the extreme fiber, A is the area of column, and I is the second moment of area) based on the axial loads (i. e., P) and moments (i. e., M) computed by integrating the stresses obtained from an explicit finite element model (e. g., GTSTRUDL model) and assuming a rectangular cross section of the shear wall (or shear wall segment). Alternatively, the "beam" properties may include the effects of the cross walls, in which case the axial loads (i. e., P) and moments (i. e., M) shall be computed by including the stresses on the cross walls.

Evaluation (conditionally acceptable): The replacement of Chapter 21 of ACI 349-01 by Chapter 21 of ACI 318-99 for seismic proportioning and detailing was approved by

the ORP previously; therefore, this evaluation is focused on the retaining of Sections 21.2.7 and 21.6.1 of Chapter 21 ACI 349-01. ACI 349-01 applies to the High Level Waste (HLW) building and the Pretreatment building. Since the HLW building and Pretreatment building structures of the WTP project are large shear wall and slab structures of heavy proportion, they exhibit small lateral deflections. Section 21.6.1 of ACI 349-01 Chapter 21 describes that at height-to-length (h/l) ratio of less than 2, concrete walls will act in shear with insignificant bending deformation, thus boundary elements are not required. In addition, the current SRD requires in Safety Criterion 4.1-3 that Appendix B of ACI 349-01 be used for anchorage design of structures. The only reference pointing to the use of Appendix B in ACI 349-01 is included in Section 21.2.7 of Chapter 21. The notes added under the justification above are intended to ensure that correct code interpretation of ACI 349-01 requirements is followed. Therefore, retaining Sections 21.2.7 and 21.6.1 of ACI 349-01 Chapter 21 while at the same time incorporating the more current methodology for seismic detailing requirements of ACI 318-99 Chapter 21 will enable the Contractor to use the most current methodology in the industry for seismic detailing, proportioning, and anchorage for these structures in the high seismic risk region. The proposed changes, as described above, do not conflict with the requirements in the top-level DOE standard, DOE/RL-96-0006, *Top-Level Radiological, Nuclear, and Process Safety Standards and Principles for the RPP Waste Treatment Plant Contractor*, and are consistent with the existing applicable laws and regulations; also, the change conforms to contract requirements associated with the authorization basis documents affected by the revision and it will not result in any inconsistencies with other commitments and descriptions contained in the authorization basis.